No. 627,933. Patented June 27, 1899.

F. KEPP & G. MESTA.

MOLDING APPARATUS.

(Application filed Mar. 14, 1898.)

(No Model.)

Fig. 1.

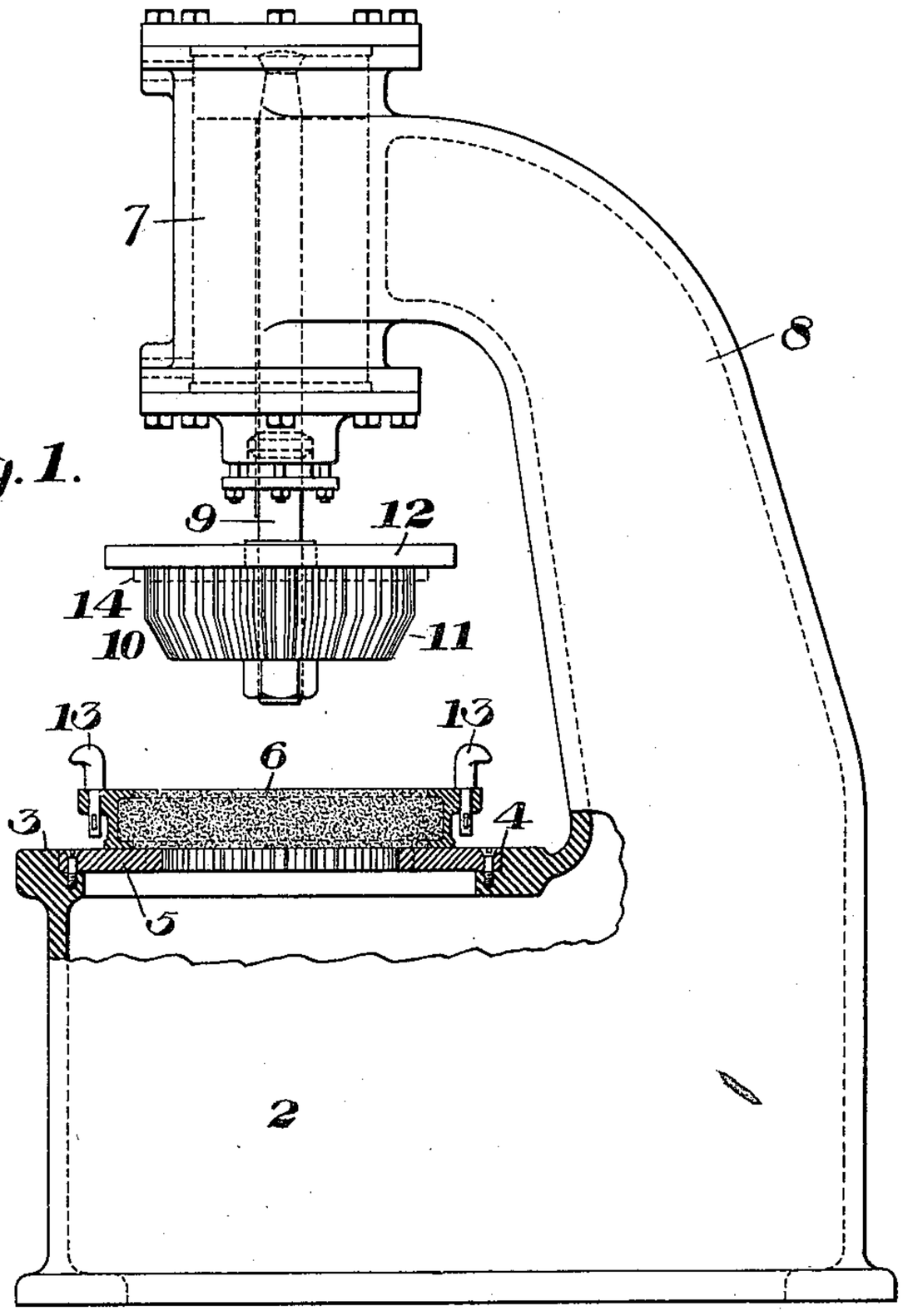
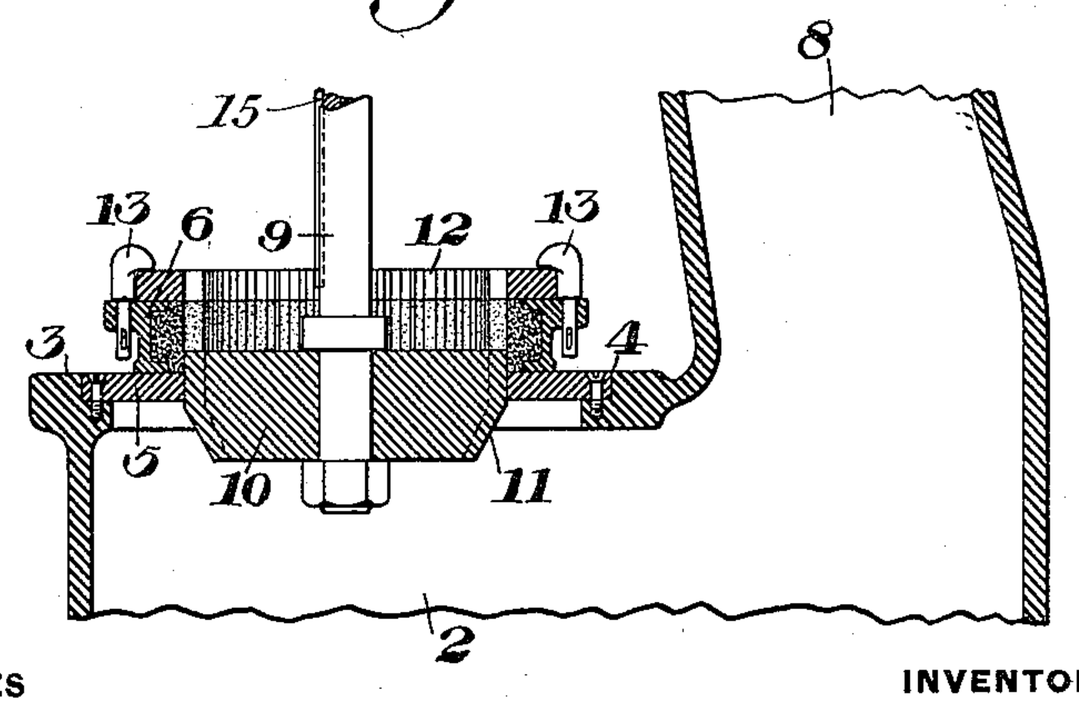


Fig. 2.



WITNESSES

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FERDINAND KEPP, OF ALLEGHENY, AND GEORGE MESTA, OF PITTSBURG, PENNSYLVANIA.

MOLDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 627,933, dated June 27, 1899.

Application filed March 14, 1898. Serial No. 673,687. (No model.)

To all whom it may concern:

Be it known that we, FERDINAND KEPP, of Allegheny, and GEORGE MESTA, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Molding Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation, partly in section, showing one form of our improved apparatus; and Fig. 2 is a partial vertical section showing the pattern in depressed position.

Our invention relates to the making of molded molds, and is designed to provide an improved apparatus whereby the pattern may be forced into the sand of the mold, so as to quickly and easily form the matrix-cavity.

The invention may also be employed in making molds by tamping the sand around the pattern, as one of the main points of the invention consists in stripping-plates so arranged as to prevent injury to the mold upon the withdrawal of the pattern.

In the drawings, 2 represents a suitable hollow base having a platform 3, provided with a large central hole having a surrounding recess 4, which receives a stripper-plate 5. We have shown our invention as applied to the manufacture of gear-wheels, and consequently this stripper-plate is shaped so as to form a female die for the pattern. The flask 6 rests upon the stripper-plate outside the line of the teeth in this plate and may be positioned thereon by dowel-pins and holes or any other suitable means for this purpose. Supported centrally above the stripper-plate is a motive cylinder 7, carried on a standard 8, extending upwardly from the base 2. To the lower end of the piston-rod 9 of this cylinder is secured the pattern 10, which in the present case is of the shape of a gear-wheel, each tooth of which is provided with a downward wedge-shaped extension 11, the inclined sides of these extensions acting to force the sand laterally in the mold and prevent breaking down of the central body of the sand. Loosely surrounding the piston-rod above this pattern is a second stripper-plate 12, which is of substantially the same shape as the lower stripper-plate and which while the pattern is being forced down through the mold rests upon the top of the pattern, being thrown out of registry therewith by a slight rotation around the piston-rod.

The operation is as follows: The mold being filled with sand, this sand is firmly packed in the flask in the usual manner, the flask is positioned upon the lower stripper-plate, and the pattern, which may be held in proper registry by a feather-and-spline connection 15 upon the piston-rod or by suitable guides, is forced downwardly through the sand until the teeth proper of the pattern enter the lower stripper-plate. The upper stripper-plate is then rotated so as to register with the pattern, and is clamped to the top of the flask by any suitable mechanism, such as the clamps 13. The pattern is then drawn upwardly through the stripper-plate, which holds the packed sand securely in place, and as soon as the teeth proper have been drawn above the stripper-plate it is released, pushed up over the pattern, and again rotated, so as to rest loosely thereon, as shown in Fig. 1. The upper stripper-plate may be provided with a downwardly-projecting ring 14, as shown in dotted lines in Fig. 1, and after the pattern has been forced down through the mold this ring may be forced into the sand of the mold, so that the stripper-plate will rest on the top of the mold, either by a wedge action of the clamps or by any other suitable mechanism.

The advantages of our invention will be apparent to those skilled in the art, since a simple and effective mechanism is provided by means of which the molds are quickly and easily formed without the use of skilled labor. The wedge action of the pattern extension aids in packing the sand firmly in place and preventing the breaking out of the middle portion of the sand, and the stripper-plates prevent injury to the mold both in forcing the pattern into and drawing it from the sand.

Many variations in the form and arrangement of the means for forcing the pattern into the sand and drawing it therefrom may be made without departing from our invention as defined by our claims. The pattern, as well as the pattern extension, when such is used, will of course conform to the shape

of the article desired, the stripper-plates being correspondingly changed.

We claim—

1. In a molding-machine, the combination with a flask-support, of a stripper-plate supported at one end of the flask and having a hole of irregular outline corresponding to the outline of the pattern, a movable stem or support carrying a pattern of irregular outline, the said support and the frame being so arranged that the pattern may be moved out of contact with the stripper-plate, and means for holding the pattern in registry with the stripper-plate hole when out of contact with said plate; substantially as described.

2. The combination with a flask-support, of stripper-plates supported above and below the flask and having holes of irregular outline corresponding to the outline of the pattern, a movable stem or support carrying a pattern of irregular outline, the said support and the frame being so arranged that the pattern may be moved out of contact with the stripper-plates, and means for holding the pattern in registry with the stripper-plate holes when out of contact with said plates; substantially as described.

3. The combination with a flask-support, of a movable stem or support carrying an irregular pattern arranged to be forced into sand packed in the flask, said pattern having a wedge-shaped extension, a stripper-plate supported at one end of the flask and having a hole of irregular outline corresponding to the pattern, the movable support and the frame being so arranged that the pattern may be moved out of contact with the stripper-plate, and means for holding the pattern in registry with the stripper-plate hole when out of contact with said plate; substantially as described.

4. The combination with a flask-support arranged to receive a flask filled with packed sand, of removable stripper-plates above and below the flask having holes of irregular outline corresponding to the outline of the pattern, a movable stem or support carrying a pattern of irregular outline, and arranged to force the same through the packed sand, means for securing the upper stripper-plate in place after the pattern is forced into the flask, the movable support and the frame being so arranged that the pattern may be moved out of contact with the stripper-plates, and means for holding the pattern in registry with the stripper-plate holes when out of contact with said plates; substantially as described.

In testimony whereof we have hereunto set our hands.

FERDINAND KEPP.
GEORGE MESTA.

Witnesses:
G. I. HOLDSHIP,
GEORGE B. BLEMMING.